

## Simulation of tsunamis and run-up along the eastern coast of Taiwan

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**Abstract.** Tsunamis can generate extremely high waves in the coastal region and rush up to far inland areas. With strong current and massive water transport on shore, coastal topography changes drastically and loss of life and property are literally the scenario of a tsunami attack. Computer simulations on tsunami propagation and inundation are very efficient and practical because of the fast development of computer technology. Based on the nonlinear wave theory, a tsunami inundation model along the Taiwan coastline has been established by using the leap-frog finite difference scheme. The moving boundary treatment was imposed for simulating the run-up/run-down process of a tsunami propagating on land. The simulated results and field data from the 1986 Hualien tsunami showed excellent agreements. Tsunami waves propagate much faster on the eastern coast than on the western coast of Taiwan because the water depth in the Taiwan Strait is less than 200 m, while a very steep beach slope, with water depth up to 4000 m at 12 km offshore, exists to the east of Taiwan.

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